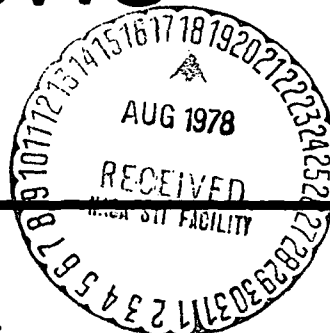


NASA News

National Aeronautics and
Space Administration

Washington, D.C. 20546
AC 202 755-8370



For Release:

IMMEDIATE

Ken Atchison
Headquarters, Washington, D.C.
(Phone: 202/755-3147)

Larry King
Ames Research Center, Mountain View, Calif.
(Phone: 415/965-5091)

RELEASE NO: 78-126

SHORT-HAUL AIRCRAFT BEGINS RESEARCH PROGRAM AT AMES

The Quiet Short-Haul Research Aircraft (QSRA) has been flown to NASA's Ames Research Center, Mountain View, Calif., to begin a flight research program to obtain technology applicable to design and operation of future quiet, short-haul transports.

Initial flight testing was completed at Boeing Commercial Airplane Co. in Seattle.

The QSRA is the first aircraft to demonstrate new technology enabling truly quiet operation of jet aircraft.

-more-

Mailed:
August 14, 1978

N78-77718

Unclas
28091
00/05

(NASA-News-Release-78-126) SHORT-HAUL
AIRCRAFT BEGINS RESEARCH PROGRAM AT AMES
(National Aeronautics and Space
Administration) 4 p

Combining high performance with special noise treatment of the engines and nacelles, landing and takeoff noise can be restricted to a relatively small area.

Operating at lower noise levels than most of today's small private aircraft, the 90-decibel noise impact area for the four-jet QSRA is less than 1.3 square kilometers (0.5 square mile). Even when scaled up to the equivalent of a 150 passenger aircraft, the 90-decibel noise impact area is still less than 2.6 sq. km (1 sq. mi.), compared with the approximately 78 sq. km (30 sq. mi.) noise footprint of comparable present day aircraft.

The QSRA was built by Boeing under a NASA contract. Although essentially a new aircraft, it makes extensive use of existing parts, including a fuselage shell and tail from a deHavilland C-8 Buffalo, landing gear parts from the Boeing 727 jet transport, and engines from the Air Force A-9A aircraft project.

High performance of the aircraft is due to the hybrid-upper-surface-blowing propulsive-lift concept used in its design. In this concept, the four jet engines are mounted on top of the wing so the fan air from the engines is directed across the upper surface of the wing and flaps.

This provides significant increases in lift, particularly at lower speeds. In addition, compressed air from the engines is fed through an ejector system to provide boundary layer control blowing at the wing leading edges and ailerons, further enhancing lift and control.

During the initial testing at Boeing, the QSRA set new records for flight testing of a new airplane. During the first week of flying the QSRA made six flights, more than any previous new Boeing airplane. During the initial 17 hours of flight evaluation, Boeing Test Pilot Tom Twiggs and NASA Research Pilot Jim Martin demonstrated steady state flight at speeds of from 50 knots to 190 knots, shut down and restart of all four engines in flight, three-engine landings and takeoffs, climb rates of 18 meters per second (3,500 feet per minute), operation at altitudes of up to 4,500 m (15,000 ft.), and a high-performance takeoff with a takeoff run of only 240 m (810 ft.).

The only serious problem encountered during the initial flight test program occurred on the first flight. Immediately after takeoff the aircraft began a series of roll oscillations. The pilots recognized the problem in the Stability Augmentation System and after switching that system off, the airplane settled down.

The problem was later traced to an incorrectly installed gyro.

Pilots since have reported the QSRA handles extremely well, is easy to fly and has "no bad habits."

Project officials believe the technology demonstrated on the QSRA could have a far-reaching effect. A future QSRA-derivitive aircraft the size of the present Boeing 727 transport could carry the same payload at the same speeds, but could operate from small airports with short runways (runways as short as about one-half to one km (1,500 to 3,000 ft.) compared with present requirements for runways of 1.6 km (1 mi.) or more) and operate so quietly that disturbing noise could not be heard in the surrounding community.

-end-